
Question 1: Do you have experience isolating air coolers to water-wash the process side while the unit continues to operate? What safety concerns do you consider before removing this equipment from operation?

RHODES (Marathon Petroleum Company)

I assume this question is for someone wanting to water-wash a fin fan to remove salts. Marathon Petroleum's preference is to avoid installing isolation valves on air coolers. Safe isolation with block valves can also be an issue, especially in high pressure units with two-phase flow. We have had experience with water-washing exchangers and air coolers offline. The Best Practice for water-washing is to fill the exchanger from a low point and allow all of the tubes to fill with water and vent out of the top of the exchanger. Filling the tubes with water provides a better chance for a water to remove salts from a plugged tube. The outlet water is checked for chlorides, and the wash will continue until the water is chloride-free. The best option is for the tubes to be jetted individually and the eddy current checked to reduce the risk of a tube leaking once the fin fan or exchanger is returned to service.

KLEISS (Valero Energy Corporation)

As Ken mentioned, at Valero we also tend to avoid isolation valves and air coolers and prefer continuous water-wash with symmetrical piping following parameters laid out in API932B. However, some units have isolation valves in this service, and the process side is water-washed one bank at a time. In these cases, it is important to monitor the temperature of each bank while performing the isolation. Once isolated, we ensure that there is sufficient flow of water, so the salts are washed out completely. The wetted salts are actually worse than the dry salts, from a corrosion standpoint. The conductivity of the wash water in and out of the exchanger is monitored. We continue to wash until the conductivity of the water out is equal to the water in.

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